

ABSTRACT OF THE DISCLOSURE

Scalable disambiguating accesses in multi-level cache hierarchies provides for improved system performance and reduced cost. Shared-storage provides portions to hold data and portions to hold corresponding status encodings. Status encodings provide information to disambiguate data requests to shared-storage without resorting to prior methods of snooping or transmitting backward status-inquiries to private-storage. Shared-storage transmits data in response to requests if its status encodings indicate no private copies of the requested data have been modified. Shared storage transmits data requests to private storage if corresponding status encodings indicate that copies of requested data in private storage have been modified. Private-storage provides coherent copies, and shared-storage proceeds to satisfy the requests. If requests indicate a need to modify data, shared storage provides invalidation transmissions to private storage holding copies of relevant data. Status encodings are then set to a dirty status for coherently processing future requests.